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One Community.

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Don’t Forget the Voice Channel in Your Security Framework

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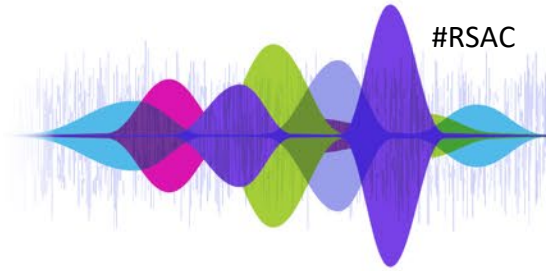

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We/Us

Brian McDonald

- 25 Years in Telecom
- Primarily Software Development
- “Accidental Security Officer”

Roger Northrop

- CTO
- 25 Years in Telecom
- R&D

Security Is Tough

$9.36M

US avg data breach cost

IBM

https://www.ibm.com/reports/data-breach

95%

Cybersecurity Breaches Caused by Human Error

Cybint

https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2022.pdf

70-90%

Social Engineering is Behind 70-90% of All Data Breaches

KnowBe4

https://blog.knowbe4.com/70-to-90-of-all-malicious-breaches-are-due-to-social-engineering-and-phishing-attacks

Vishing: A Real Threat

442%

Vishing Attack Increase Between 1st & 2nd half of 2024

CrowdStrike

https://www.crowdstrike.com/en-us/global-threat-report/

37%

Vishing Attack Success Rate

Group IB

https://www.darkreading.com/perimeter/how-to-attack-yourself-better-in-2021

70%

of Organizations have been Victims of Vishing Attacks

Keepnet

https://keepnetlabs.com/reports/2024-voice-phishing-response-report

Voice Security: Industry Sentiment

94%

Believe Voice should be added to Cyber Strategy

Mutare

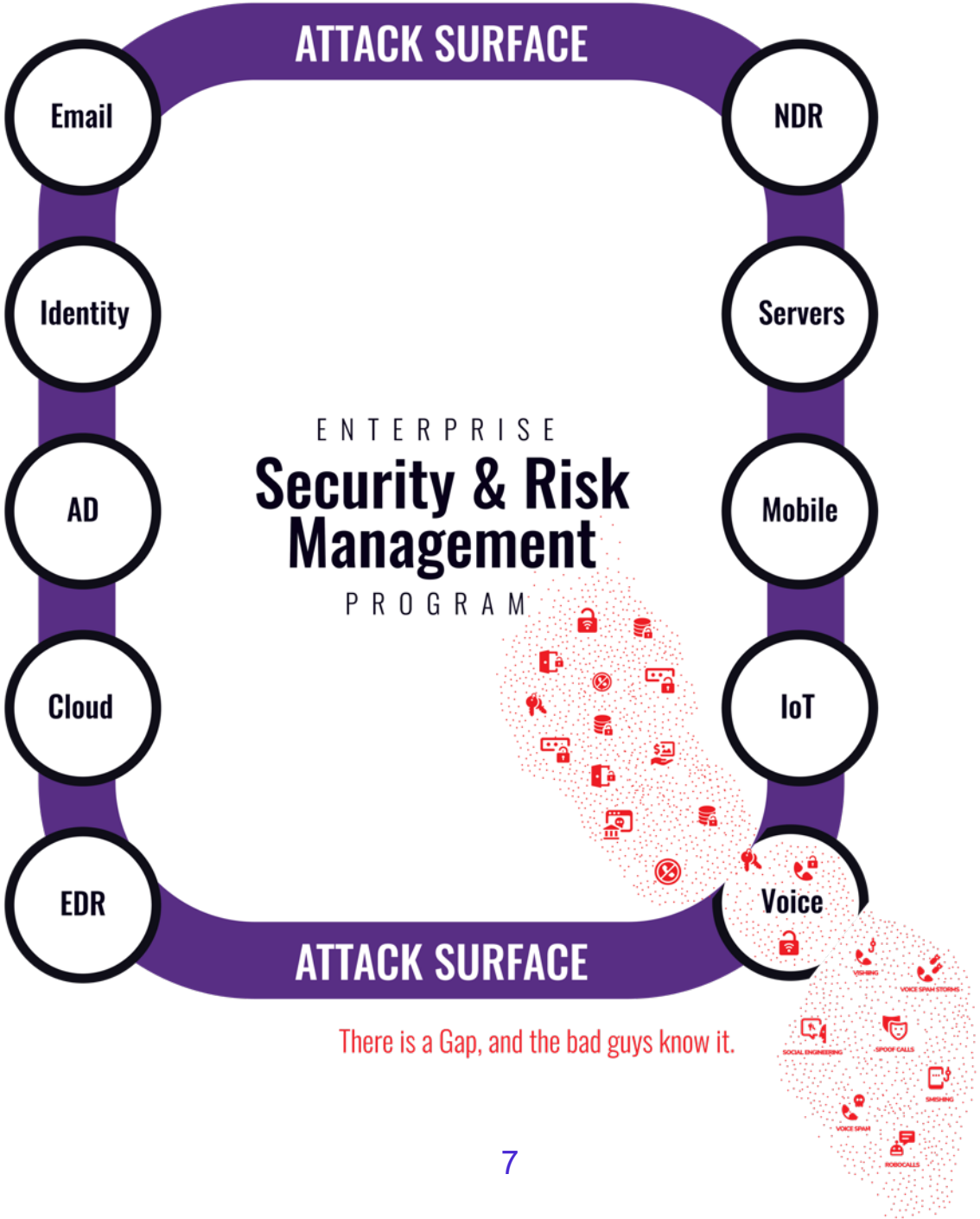
https://www.mutare.com/voice-threat-survey-2024/

41%

Not Aware Technical Solutions are Available for Voice Security

Mutare

https://www.mutare.com/voice-threat-survey-2024/


ATTACK SURFACE
Email
Identity
AD
Cloud
EDR
NDR
Servers
Mobile
IoT
Voice
ENTERPRISE
Security & Risk
Management
PROGRAM
ATTACK SURFACE
There is a Gap, and the bad guys know it.

Today

Attacks / Threats

Mitigate

Apply

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Attacks & Threats

Top Voice-Based Attacks

Robocalls

Spam Storms

Spoof Calls

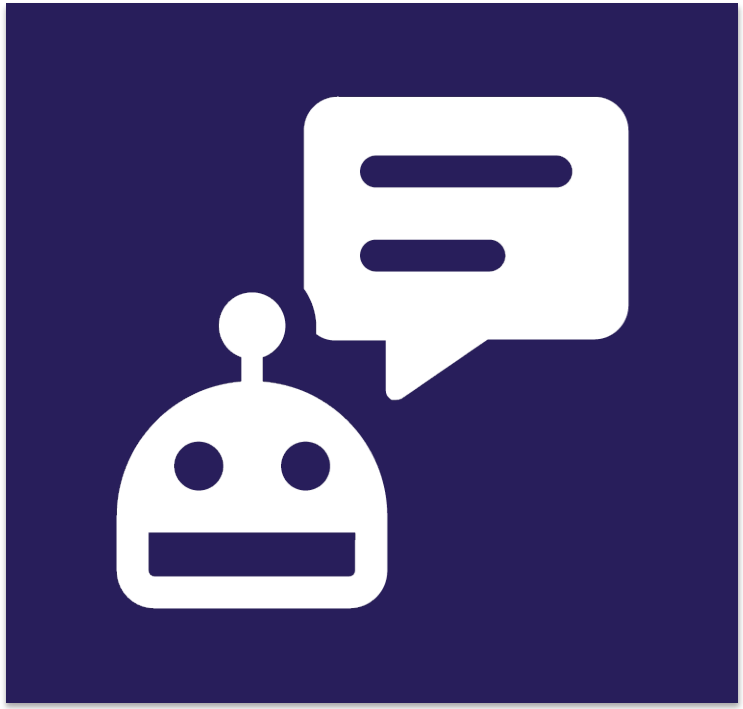
Vishing

Spam Calls

GenAI

Robocalls

- Automated
- Usually prerecorded message
- Warranty / Free Cruise! / IRS

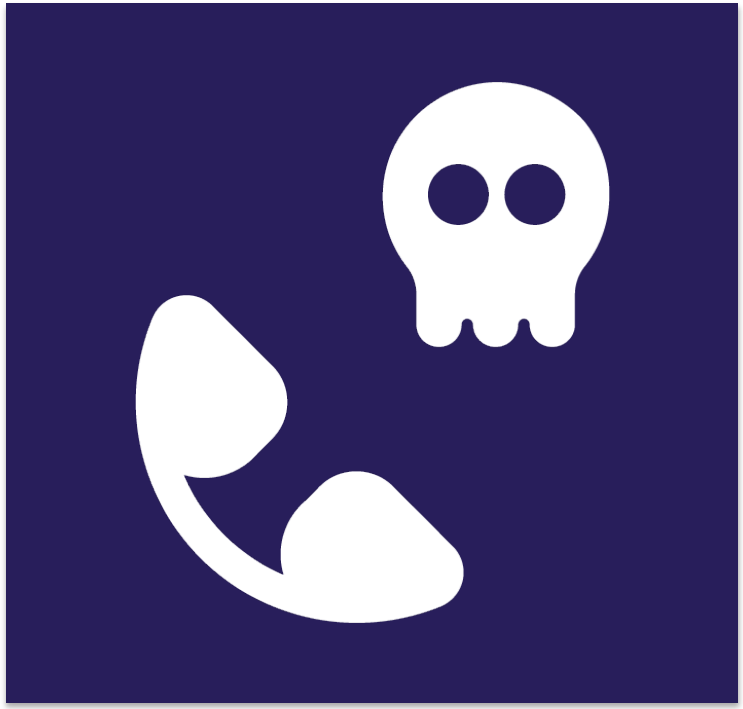


Spoof Calls

- Manipulate Caller ID
- Impersonation
  - Toll Free Number (e.g. Bank, IRS)
  - C-Suite / HR
- Neighbor Spoofing

Spam Calls

- Outcall
  - Voicemail
  - Wangiri (one-ring)
  - Telephone-Oriented Attack Delivery (TOAD)
- Callback
  - Premium-Rate Number
  - Fake Customer Support



Voice Spam Storms

- Telephone Denial of Service (TDoS)
- War dialing
- Slamming

Vishing (Voice + Phishing)

- Friend / Adversary
- Urgency and/or Fear
- Reveal Sensitive Info
- Initial Access

Vishing Tactics

- Bank / Government
- HR / C-Suite
- Healthcare
- Attack Chaining
- Impersonate IT Staff – Tech Support
- Impersonate Employee – Help Desk

Generative AI

- Deep Fake Clones
- AI Audio Mask Identity for Calls
- LLMs used for call scripting
- Information Operations Campaign

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Real World Attacks

Target: Cisco

- Google Chrome Password Syncing
- MFA Bypass Attempts
  - MFA Fatigue
  - Vishing Attack
- Ultimate MFA Push Acceptance
- Initial access

Event Timeframe: 2022

https://blog.talosintelligence.com/recent-cyber-attack/

Target: MGM Resorts

- Vishing Attack
  - IT Help Desk
  - Employee “Lost” Device
- Used LinkedIn to Impersonate
- Password Reset
- Initial Access
- Privilege Escalation → Ransomware

Event Timeframe: 2023

https://investors.mgmresorts.com/investors/news-releases/press-release-details/2023/MGM-RESORTS-UPDATE-ON-RECENT-CYBERSECURITY-ISSUE/default.aspx

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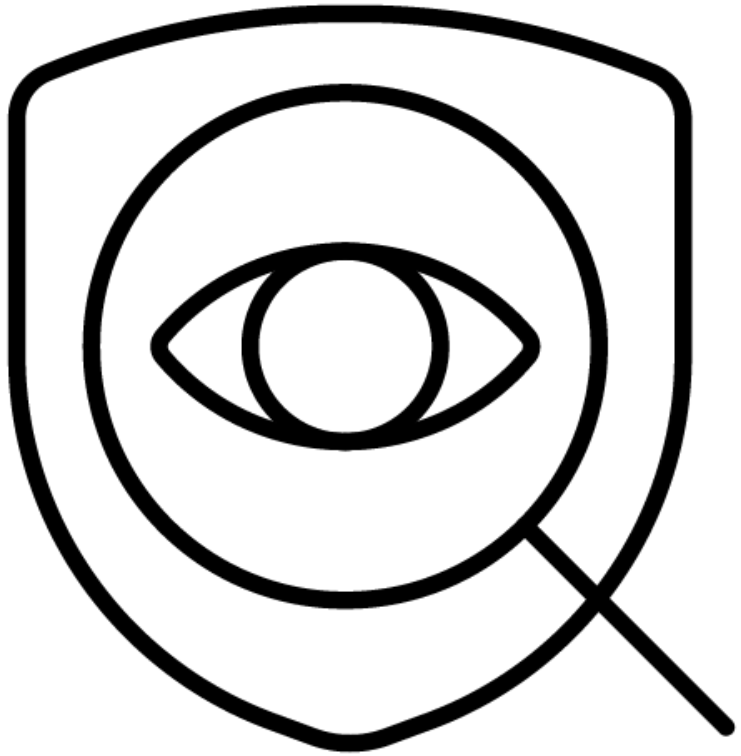
Mitigation

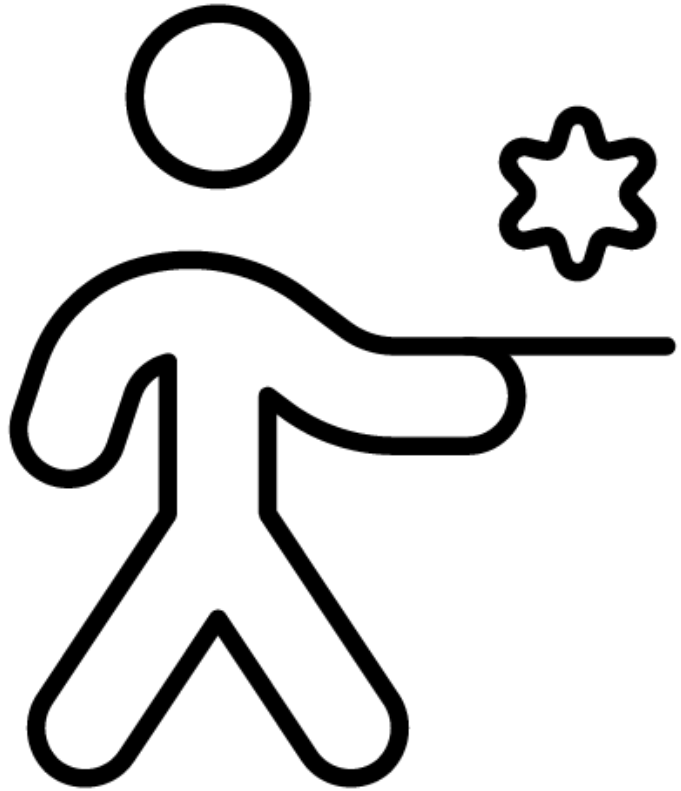
Asset Management

- ITAM / CAASM
- Inventory
  - Hardware
  - Carrier
  - All Endpoints
    - Retail / New Acquisitions / Mobile
    - Cloud Services
- Identify Risk

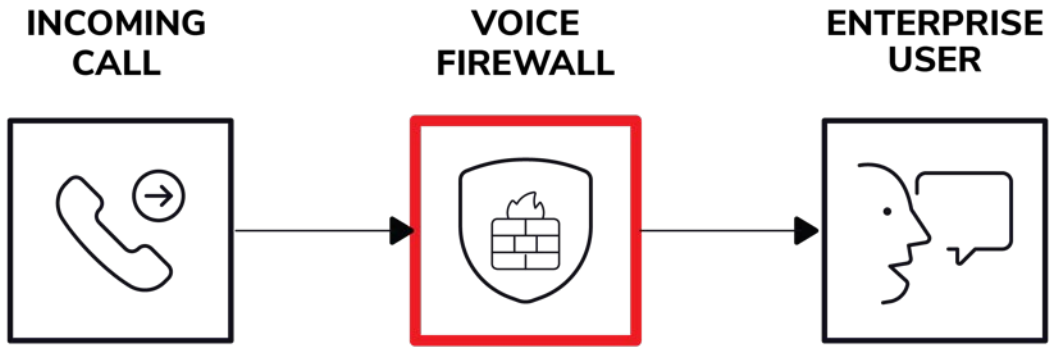


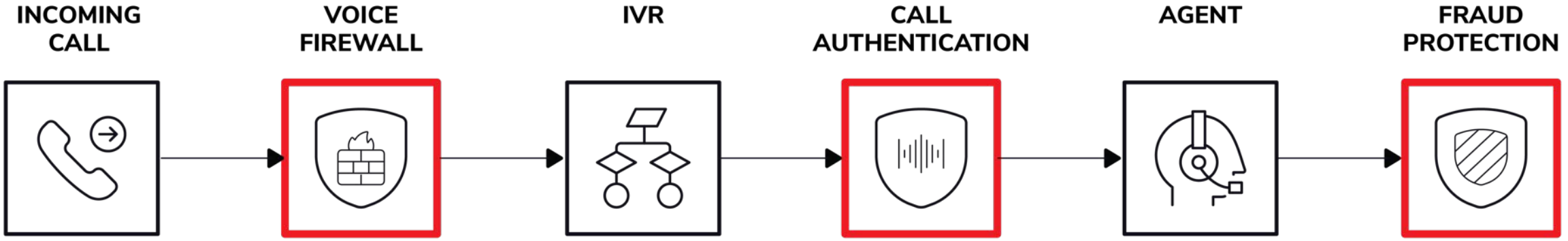
Carrier

- Tools
  - Anti-TDoS
  - Reputation Providers
  - Call Labels
- STIR/SHAKEN
  - Validation / Certification / Attestation
  - Request S/S Data
- Outbound Reputation



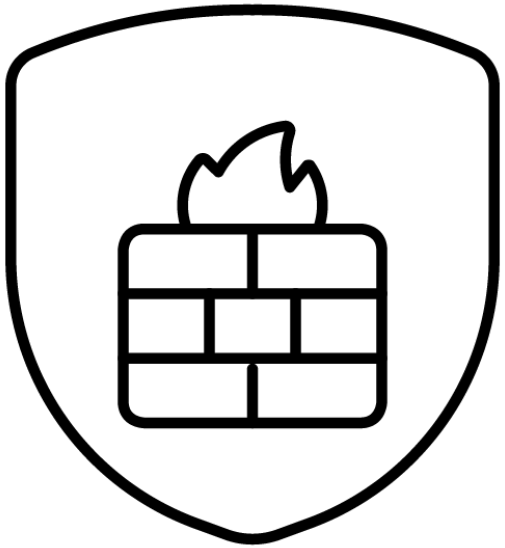
Call Flows

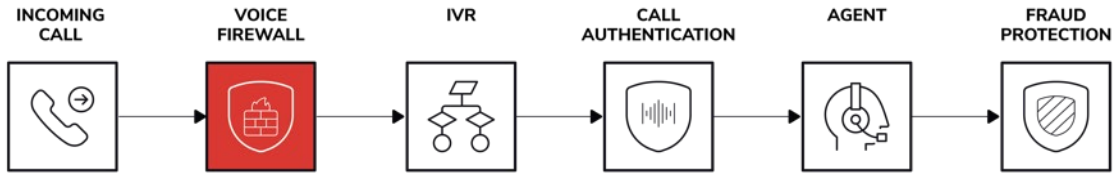

INCOMING CALL
VOICE FIREWALL
ENTERPRISE USER


INCOMING CALL
VOICE FIREWALL
IVR
CALL AUTHENTICATION
AGENT
FRAUD PROTECTION

Voice Firewall

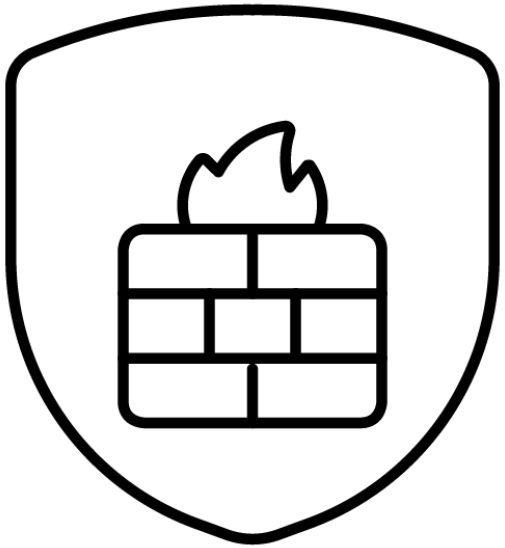
- **Before the phone rings!**
- Session Border Controller (SBC)
- Lookups (reputation, number validation)
- Check against STIR/SHAKEN
- Traffic Analysis

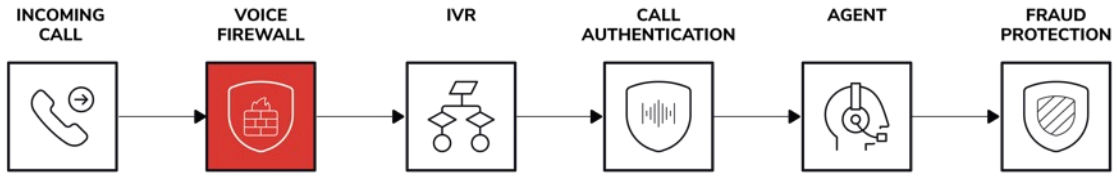




Voice Firewall

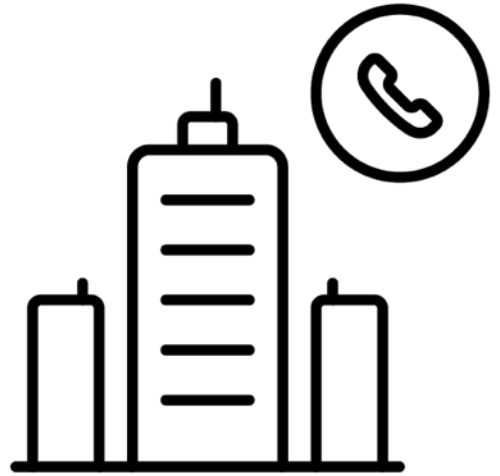
- Rules
  - Blocklist / Allowlist
  - Geo Block / Allow
  - Redirect (Quarantine)
- Challenge (Voice CAPTCHA)
- Outbound





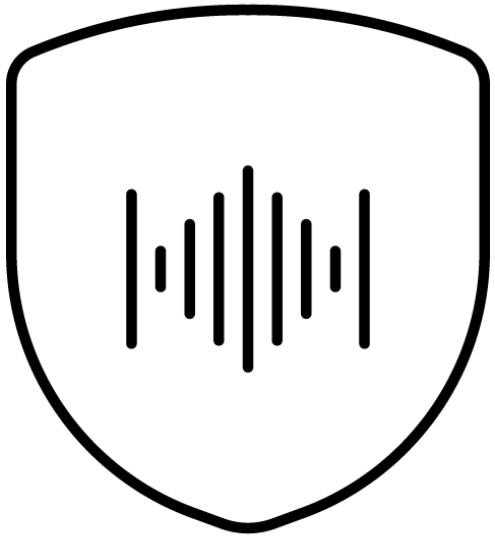
Mobile / Outside Organization

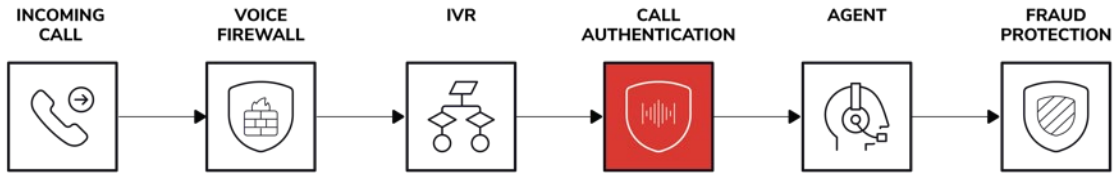
- MDM or BYOD
- Reputation Apps
- Teams / Webex / Zoom
- Consolidate



Call Authentication

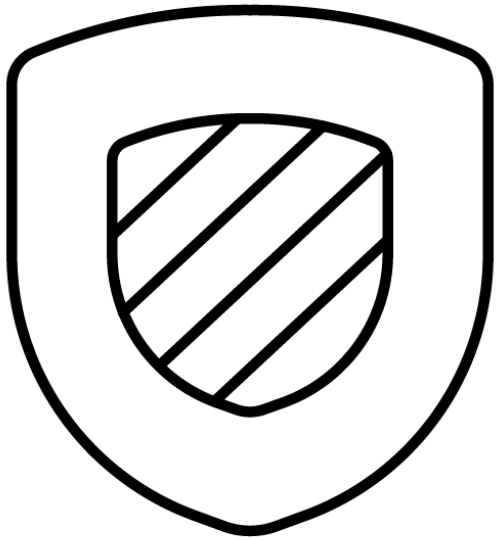
- Voiceless Authentication
- Number Validation
- Passive MFA
- Speaker Recognition (Voice Biometrics)

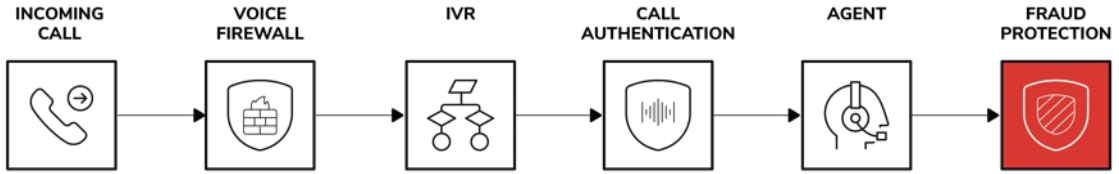




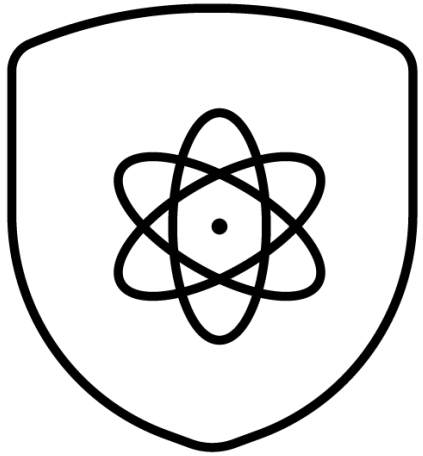
Fraud Detection

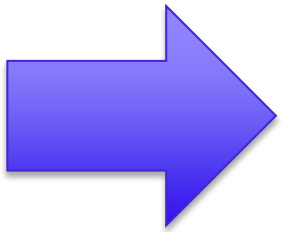
- Deep Voice Analysis
- Phoneprinting
- Behavior Analysis
- Intelligence Network

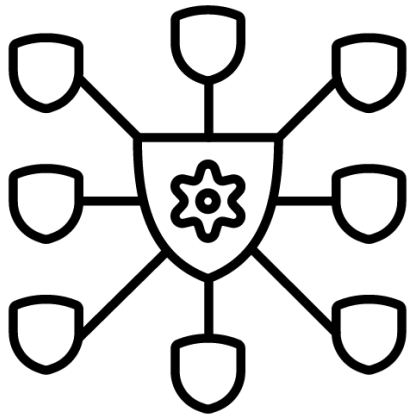




Tie Into Your Security Framework!







Voice Telemetry

SIEM

Aggregation

XDR

Correlation

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Apply

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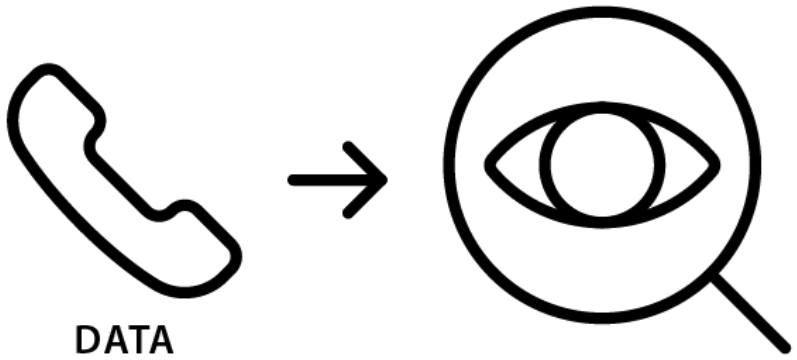
One Community.

Apply – Education

- Educate your CISO
- Phishing Tests – Why Not Vishing Tests?
- Training, Training, Training
  - IT Help Desk
  - Remote Employees
  - Contact Center Agents

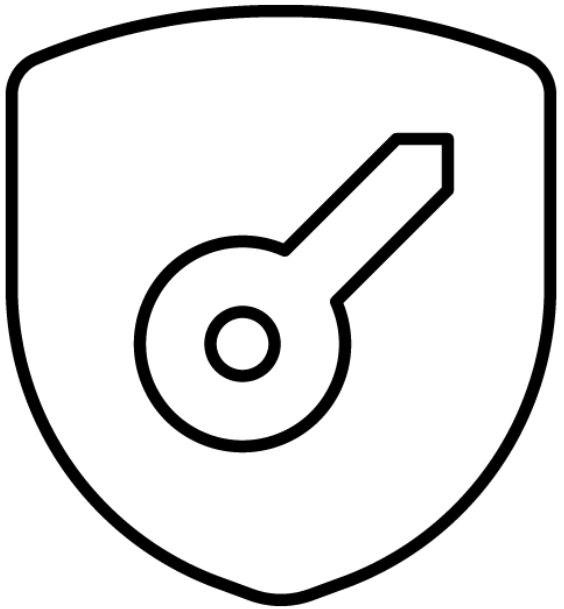
Apply – Inventory

- Visibility is Key
- Identify your Carriers / Cloud Providers
- List your DIDs / Associate Business
- Analyze CDR



Apply – Take Control

- Prioritize by Risk
- Integrate into XDR
- Traffic Analysis
- Work with Your Carrier



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Thank You!

For more information:

mutare.com